

Biomass to Power in the Forestry Sector Opportunities and Challenges



CEC Staff Integrated Energy Policy Report Workshop
Status of Bioenergy Development in California
June 3, 2013, Sacramento, CA

TSS Consultants

- TSS established in 1986 – principal focus was biomass to power
- Continue to assist project developers, government agencies, utilities, and tribal entities with bioenergy development and projects – biopower, biogas, biofuels, and bioproducts

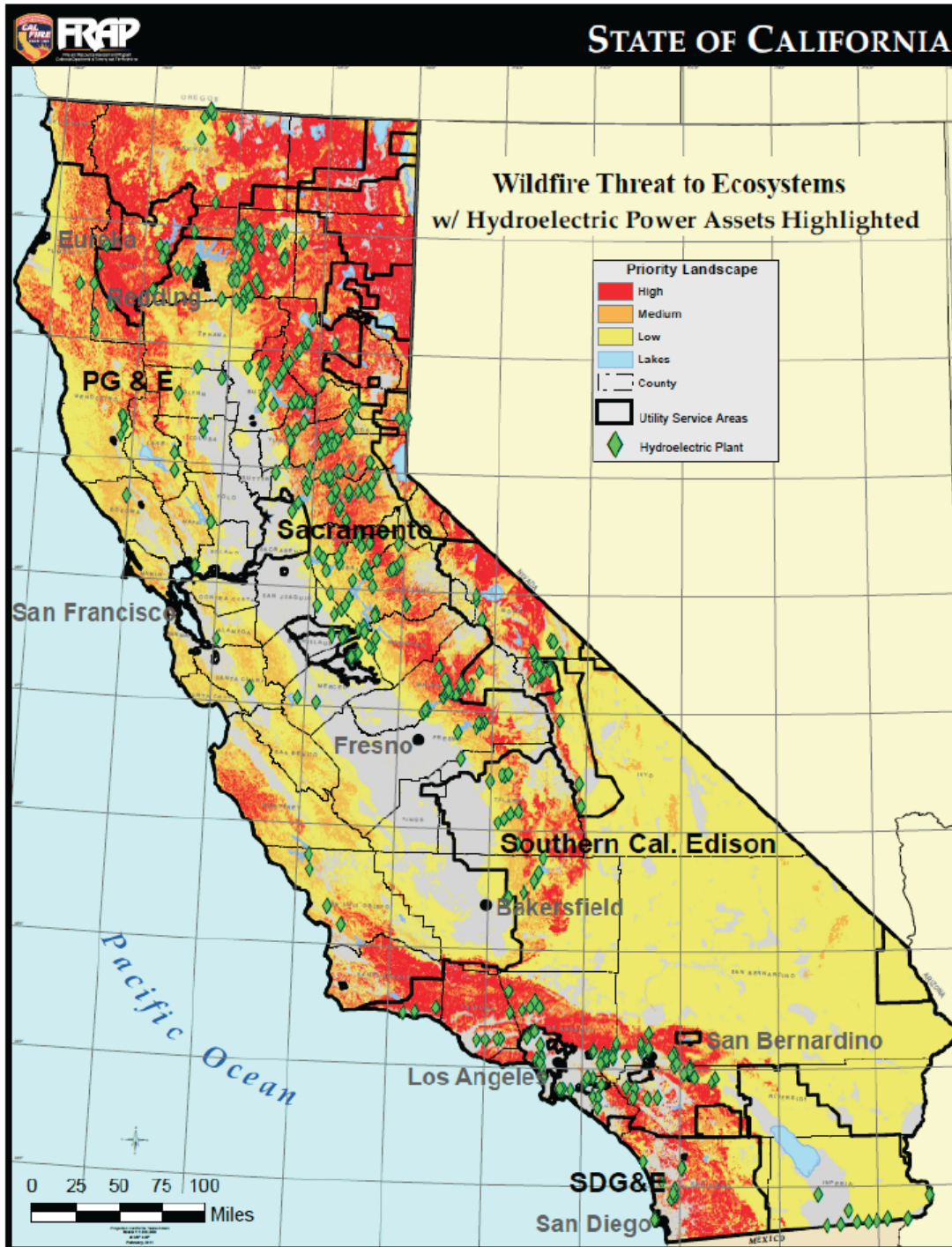


Why Biomass to Power?

- Biomass to power has societal and environmental values that are difficult to monetize
- Biomass to power creates long-term jobs
- Biomass to power can help solve waste issues
- Forest-sourced biomass to power can improve forest health and mitigate wildfire occurrences

The Situation

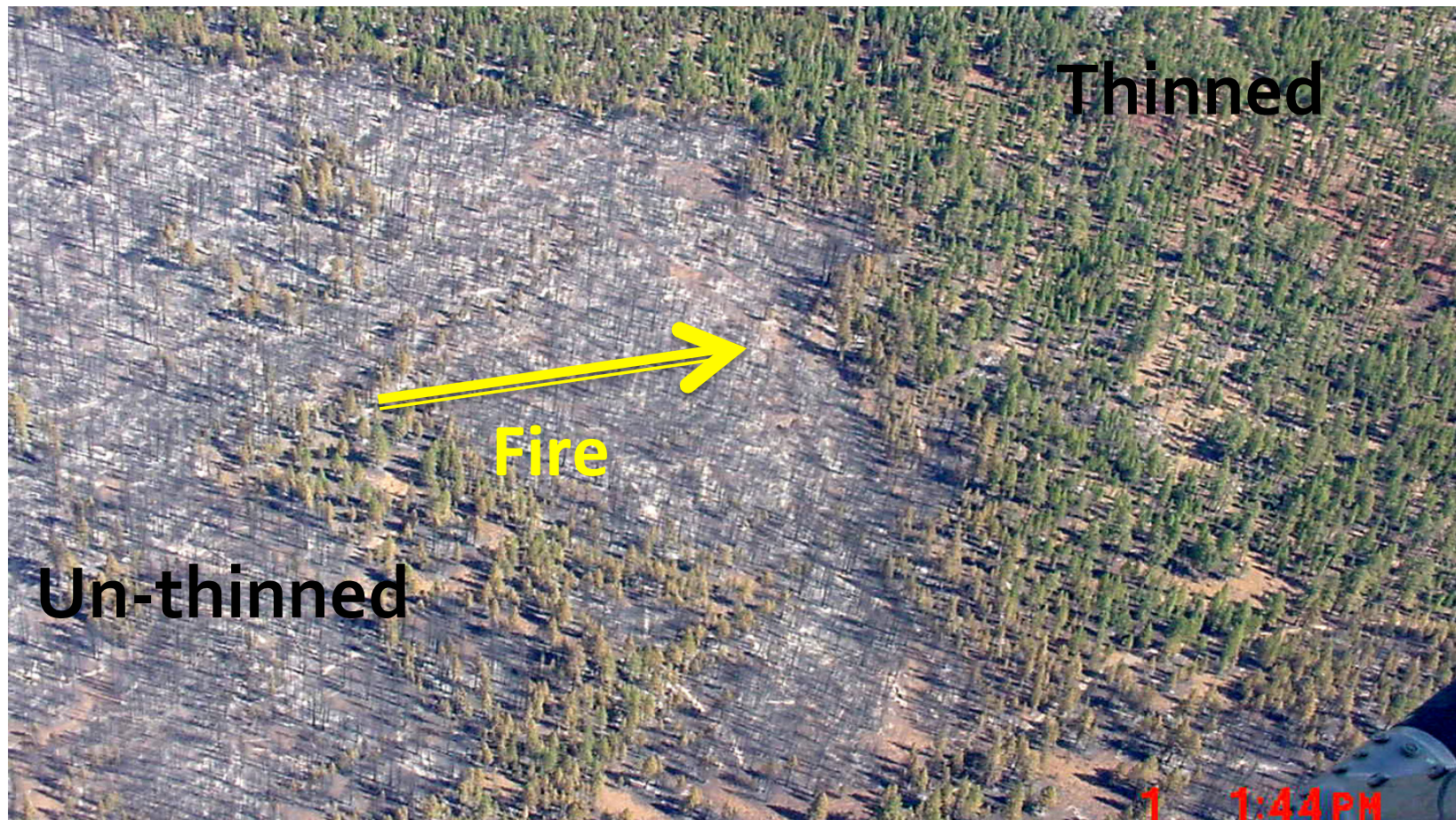
- IOU Territories in CA have substantial acres of forests and wildlands in medium to high threat of wildfire.
- Nearly 25 million acres (25% of CA)
- Climate change may be increasing this wildfire danger



Forest Thinning and Biopower

- Wildfire hazard is reduced by removing excess biomass fuel
- Power generation technology in small, distributed system has advanced
- Such power plants provide a place to take the hazardous fuels (rather than pile/burn)
- However, with this potential opportunities come the challenge of costs

Positive Effects of Fuel Treatments



Cone Wilfire, Lassen National Forest, September 2002

The Challenges

- High cost of feedstock (collection, processing and transport).
- No ability to pass through increased cost of labor/diesel fuel to PPA
- Financial markets are hesitant to support early phase technologies (gasification)
- Not all stakeholders (e.g., CBD) are on board
- Small scale biopower economies of scale

ALL OF THE ABOVE TRANSLATE INTO
SIGNIFICANT COSTS

CA Legislation & Policy Directives

Creating Opportunities



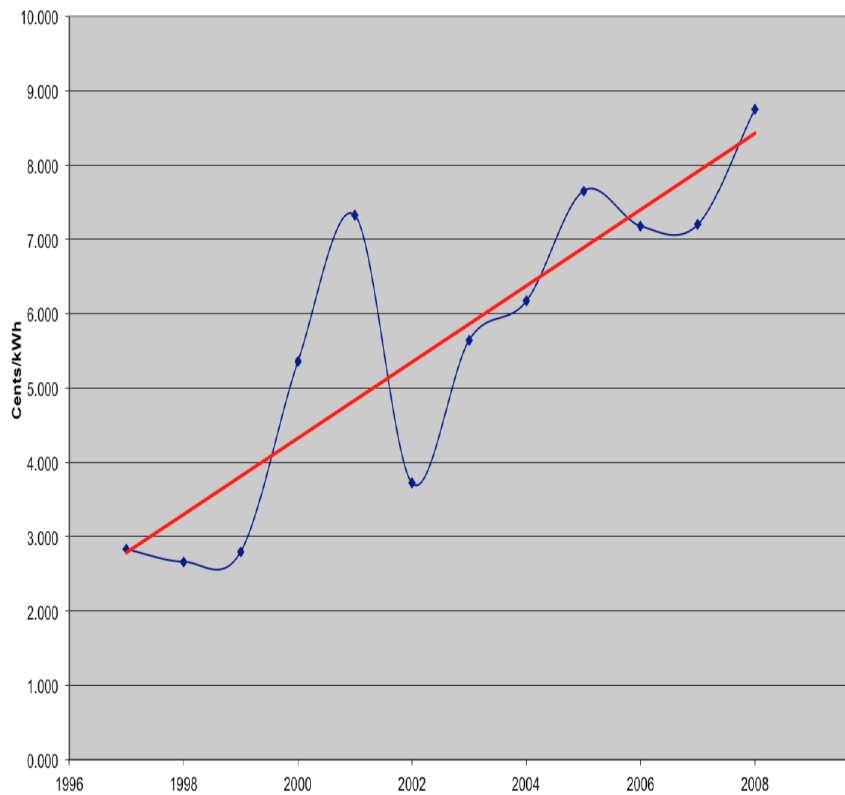
- CA Bioenergy Action Plan
- Senate Bill 1122 (2012)
- Electricity Program Investment Charge (EPIC)
- SB 1X 2 (2012)
- AB 32 (2006)

SB 1122

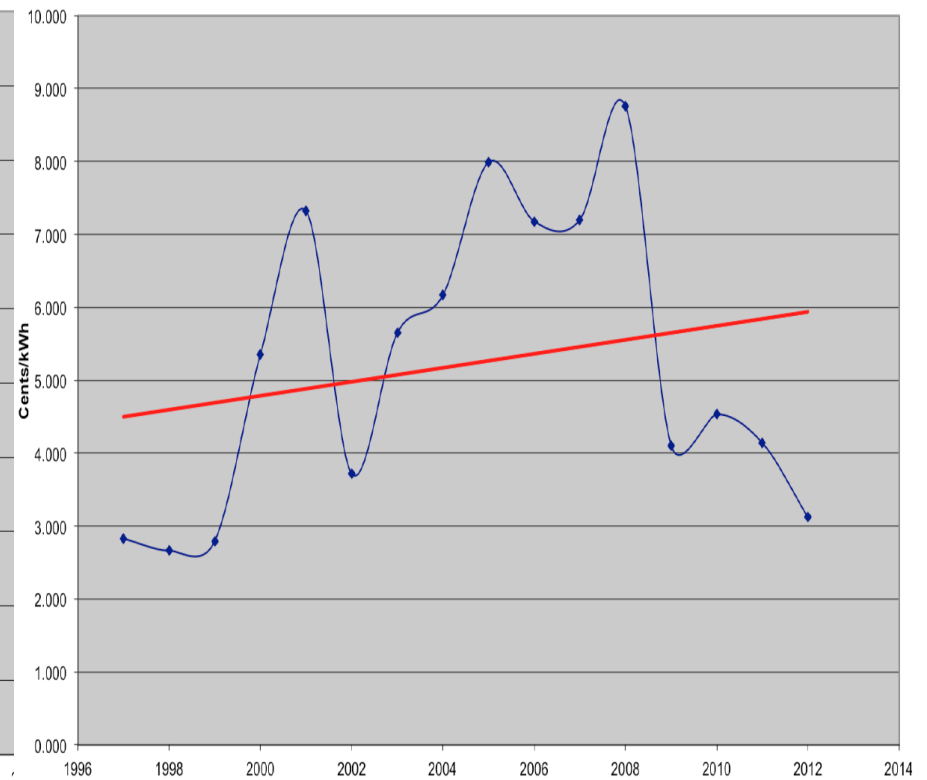
- Enacted in 2012
- Requires 250 megawatts of biomass power procurement:
 - 110 megawatts from wastewater treatment, organic waste diversion, food processing, and codigestion
 - 90 megawatts from dairies and agricultural waste
 - 50 megawatts from sustainable forest-sourced biomass
- Rules being developed at CPUC under the Renewable Market Adjusting Tariff (Re-MAT) proceeding

Why is SB 1122 Needed?

■ 1997 to 2008



■ 1997 to 2012



Project Pre-Development Challenges



- Difficulty in obtaining feasibility study funding,
- Issues regarding stakeholder and community support,
- Difficulty in obtaining funding for preliminary analysis,
- Delays and challenges to permitting processes,
- Utility company interconnection and contracting issues, and
- Delays in development and implementation of new PUC policies related to pricing and power purchase agreements

THE ABOVE ITEMS REQUIRE WORK AND COSTS BEFORE A PROJECT DEVELOPER CAN BE BROUGHT ON BOARD FOR A FOREST-BASED BIOPOWER PROJECT

Pre-development Costs

Cost Item	Low Cost	High Cost
Feasibility study	\$25,000	\$60,000
Site Planning	\$10,000	\$35,000
Preliminary Engineering	\$30,000	\$50,000
Planning and Zoning permits	\$2,000	\$10,000
Construction cost estimates	\$5,000	\$10,000
Electrical engineering	\$5,000	\$15,000
Utility company interconnection study (SIS)	\$30,000	\$60,000
CEQA and other permit preparation	\$50,000	\$500,000 ⁵
CEQA, Air and Water permit fees	\$7,000	\$15,000
CEC, FERC, WREGIS, CPUC, CALISO registrations, etc.	\$4,000	\$10,000
Totals	\$168,000	\$765,000

Table courtesy of the Sierra Nevada Conservancy April 2013

Path Forward

- Fully support the implementation of SB 1122 process which will garner higher PPA rates for forest-based biopower
- Allocate dedicated funds to biopower through the AB 32 Cap & Trade and EPIC investment plans

Path Forward (cont'd)

- Institute state loan guarantee program for forest-based biopower
- Institute low-interest loan program for forest-sourced biopower
- Fully implement the CA Bioenergy Action Plan

Thank You

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